

2.2 Common Factoring

Factoring is the opposite of Expanding

Expanding involves multiplying (get rid of brackets)

Factoring involves breaking the expression back up
(putting brackets back in)

$$\begin{array}{c}
 \xrightarrow{\text{Expanding}} \\
 2x(3x - 4) = 6x^2 - 8x \\
 \xleftarrow{\text{Factoring}}
 \end{array}$$



With Algebra tiles:

Ex1: Factor $3x + 9$

$x + 3$

3

$= 3(x + 3)$

Ex 2: Factor $x^2 + 3x$

$x + 3$

x

$= x(x + 3)$

Sep 20-9:58 AM

Algebraically:

1. Look for the Greatest Common Factor (GCF)
2. Place the GCF in front of the brackets
3. Divide each term by the GCF to find what goes in the brackets

Ex 1: Factor

a) $4x + 24$

$= 4(x + 6)$

b) $12x^2 - 32x + 6$

$= 2(6x^2 - 16x + 3)$

c) $8a^3b^2 - 18ab^4 + 20a^4b^5$

$= 2ab^2(4a^2 - 9b^2 + 10a^3b^3)$

Sep 20-10:22 AM

d) $3x(5x - 1) + 2(5x - 1)$

$$= (3x + 2)(5x - 1)$$

$$3x + 2 = 0$$

$$\frac{3x}{3} = \frac{-2}{3}$$

$$x = -\frac{2}{3}$$

$$5x - 1 = 0$$

$$5x = 1$$

$$x = \frac{1}{5}$$

e) $5x(a + b) - 1(a + b)$

$$= (5x - 1)(a + b)$$

f) $9x(5x - 1) - 2(1 - 5x)$

$$= 9x(5x - 1) - 2(-5x + 1)$$

$$= (9x + 2)(5x - 1)$$

Sep 20-10:22 AM

Ex 2:

Given the area of a rectangle $12x^2 - 4x$ units squared
find the length if the width is $4x$ units

$$\begin{array}{c} (3x-1) \\ \boxed{12x^2-4x} \\ 4x \end{array} \quad 4x(3x-1) = 12x^2-4x$$

Sep 20-12:21 PM

HMWK

P 93 # 2 - 8, 12, 14

Sep 20-12:22 PM